

Page 35, line 25: before "In step 1502" please add - The flowchart of Figure 15

starts with step 1500 and continues to step 1502.--

Page 36, line 7: before "In step 1602" please add - The flowchart of Figure 16

5 starts with step 1600 and continues to step 1602.--

IN THE CLAIMS

Please amend the claims as follows. All pending claims after this amendment are

10 listed below for the convenience of the Examiner. Claims amended by the Amendment
are indicated as such.

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Please cancel claims 2-6.

15 1 (Amended) A [computer-implemented method for scheduling cells
output on an output path of a] data switch [, said data switch being configured for
switching said cells from a plurality of input paths to said output path, comprising] for
communicating among a plurality of devices coupled to said data switch in a digital data
network wherein a virtual connection is represented by a connection between a first
device of said plurality of devices and a second device of said plurality of devices of said
digital data network, said switch including:

Q11
20 [providing a plurality of queues, each queue of said plurality of queues having an
assigned weight, respective ones of said plurality of input paths being coupled to
respective ones of said plurality of queues;

providing a plurality of queues of queues, said plurality of queues being coupled to said plurality of queues of queues with queues of said plurality of queues having a similar weight being coupled a same queue of queues of said plurality of queues of queues; and

5 providing a scheduler, said plurality of queues of queues being input into said scheduler, said scheduler being coupled to said output path]

a switch element having a switch matrix;

at least one input switch access port structure coupled to said switch matrix containing a plurality of input back pressure buffer structures, wherein said plurality of input back pressure buffer structures is configured to allow input back pressuring to be accomplished on a per-virtual connection basis;

a plurality of input ports coupled to said at least one input switch access port structure, wherein said plurality of input ports are coupled to a plurality of traffic generators;

15 at least one output arbitration structure coupled to said switch matrix and coupled to said plurality of output ports, wherein said at least one output arbitration device represents the circuitry for arbitrating access to a single output port of said plurality of output ports; and

a plurality of output ports coupled to said output arbitration portion, wherein said

20 plurality of output ports are coupled to a plurality of output destinations.

7. (New) The switch of claim 1 wherein a size of said plurality of input back pressure buffer structures are individually set.

8. (New) The switch of claim 1, wherein a size of a single input back pressure buffer structure of said plurality of input back pressure buffer structures is optimized by specifying a threshold window which includes a maximum and minimum size for said input back pressure buffer structure.

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9. (New) The switch of claim 1, wherein a size of said plurality of input back pressure buffer structures is configured for a plurality of said virtual connections.

10. (New) The switch of claim 9, wherein said plurality of input back pressure buffer structures are configured for said plurality of virtual connections having a same priority.

11. (New) The switch of claim 1, wherein each output arbitration structure of said at least one output arbitration structure includes a plurality of schedulers and a plurality of selectors.

12. (New) The switch of claim 11, wherein each scheduler of said plurality of schedulers is configured to schedule ATM cells on one of a per-virtual connection basis, a per-port basis, a per traffic class, a per priority basis, a per group of virtual connections basis, and a cells similarly grouped basis.

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13. (New) The switch of claim 11, wherein arbitration is performed on a per-virtual connection basis wherein said each scheduler of said plurality of schedulers are coupled to connections having a same priority for switching.

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14. (New) The switch of claim 11, wherein each scheduler of said plurality of schedulers is coupled to at least two buffer structures having a same priority.

15. (New) The switch of claim 11 wherein each selector of said plurality of 5 selectors is configured to select ATM cells using at least one of a round-robin selection technique and a weighted round-robin technique.

16. (New) The switch of 11, wherein said at least one output arbitration structure includes one of said plurality of selectors for every ATM output.

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17. (New) A data switch for communicating among a plurality of devices coupled to said data switch in a digital data network wherein a virtual connection is represented by a connection between a first device of said plurality of devices and a second device of said plurality of devices of said digital data network, said switch 15 including:

a switch element having a switch matrix;

at least one input switch access port structure coupled to said switch matrix containing a plurality of input back pressure buffer structures, wherein said plurality of input back pressure buffer structures is configured to allow input back pressuring to be 20 accomplished on a per-virtual connection basis;

a plurality of input ports coupled to said at least one input switch access port structure, wherein said plurality of input ports are coupled to a plurality of traffic generators; and

at least one output switch access structure coupled to said switch matrix, said at 25 least one output switch access structure including,

a plurality of schedulers,
a at least one selector,
an at least one switch matrix output port; and
at least one output port coupled to said at least one output switch access structure,
5 wherein said at least one output port is coupled to a plurality of output destinations;
wherein said at least one output switch access structure arbitrates access to a
respective said at least one output port.

18. (New) The switch of claim 17 wherein a size of said plurality of input
10 back pressure buffer structures are individually set.

19. (New) The switch of claim 18 wherein a size of a single input back
pressure buffer structure of said plurality of input back pressure buffer structures is
optimized by specifying a threshold window which includes a maximum and minimum
15 size for said input back pressure buffer structure.

20. (New) A data switch for communicating among a plurality of devices
coupled to said data switch in a digital data network wherein a virtual connection is
represented by a connection between a first device of said plurality of devices and a
20 second device of said plurality of devices of said digital data network, said switch
including:

a switch element having a switch matrix;
at least one input switch access port structure coupled to said switch matrix
containing a plurality of input back pressure buffer structures, wherein said plurality of
25 input back pressure buffer structures is configured to allow input back pressuring to be

accomplished on a per-virtual connection basis, and a size of a single input back pressure buffer structure of said plurality of input back pressure buffer structures is optimized by specifying a threshold window which includes a maximum and minimum size for said input back pressure buffer structure, and a size of said plurality of input back pressure buffer structures are individually set;

5 a plurality of output switch access port structures coupled to said switch matrix; a plurality of input ports coupled to said plurality of switch access port structures, wherein said plurality of input ports are coupled to a plurality of traffic generators; a plurality of output ports coupled to said switch matrix, wherein said plurality of 10 output ports are coupled to a plurality of output destinations; and

12 at least one output arbitration device coupled to said switch matrix and coupled to said plurality of output ports, wherein said at least one output arbitration device represents the circuitry for arbitrating access to a single output port of said plurality of output ports.

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21. (New) The switch of claim 20, wherein said at least one output arbitration device schedules cells inputted into said input ports in accordance to a weight accorded to each cell of said plurality of cells.

20 22. (New) A switch element, comprising:

an input routing portion including a switch matrix input port for receiving data; a buffer portion including a plurality of buffers; a switch matrix portion for routing data out from the plurality of buffers; an output arbitrating portion, including,

a plurality of schedulers for receiving the data from the plurality of buffers through the switch matrix,

a selector for receiving data from the plurality of schedulers, the selector enabling output from the switch element through a switch matrix output port.

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23. (New) A switch element as recited in claim 22, further comprising:

an additional input routing portion including an additional switch matrix input port for receiving data;

an additional buffer portion including an additional plurality of buffers, the switch matrix portion routing data out from the additional plurality of buffers;

an additional output arbitrating portion, including an additional plurality of schedulers for receiving the data from the additional plurality of buffers through the additional switch matrix, and

an additional selector for receiving data from the additional plurality of schedulers, the additional selector enabling output from the switch element through an additional switch matrix output port.

24. (New) A switch element as recited in claim 23, wherein the output arbitrating portion receives data from the buffer portion and the additional buffer portion through the switch matrix portion and the additional switch matrix portion.

25. (New) A switch element as recited in claim 24, wherein the additional output arbitrating portion receives data from the buffer portion and the additional buffer portion through the switch matrix portion and the additional switch matrix portion.

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26. (New) A switch element as recited in claim 22, wherein the input routing portion receives data from a plurality of traffic generators.

27. (New) A switch element as recited in claim 23, wherein a plurality of 5 traffic acceptors receive data from the output arbitrating structure.

28. (New) A switch element, comprising:

a first input routing portion including a first switch matrix input port for receiving data;

10 a first buffer portion including a first plurality of buffers;

a switch matrix portion for routing data out from the first plurality of buffers and a second plurality of buffers;

a first output arbitrating portion, including,

a first plurality of schedulers for receiving the data from the first plurality

15 of buffers and the second plurality of buffers through the switch matrix,

a first selector for receiving data from the first plurality of schedulers, the first selector enabling output from the switch element through a first switch matrix output port;

a second input routing portion including a second switch matrix input port for 20 receiving data;

a second buffer portion including the second plurality of buffers;

a second output arbitrating portion, including,

a second plurality of schedulers for receiving the data from the first plurality of buffers and the second plurality of buffers through the switch matrix,